REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-8 are pending in the present application. No claims are amended by the present amendment, thus, no new matter is added.

In the outstanding Action, Claims 1-5 were rejected under 35 U.S.C. §103(a) as unpatentable over Miya (U.S. Pub No. US 2003/0171118 A1) in view of Cheng et al. (U.S. Pub No. US 2004/0018846 herein referred to as "Cheng"); and Claims 6-8 were rejected under 35 U.S.C. §103(a) as unpatentable over Fujino (U.S. Pub No. US 2003/0174689 A1) in view of Cheng and Miya.

Addressing now the rejection of Claims 1-5 under 35 U.S.C. §103(a) as unpatentable over Miya in view of Cheng, this rejection is respectfully traversed.

Claim 1 recites,

> A packet communication method comprising the steps of:
> establishing a radio layer 2 connection based on a radio layer 2 tunneling protocol, between a mobile station and a controller device;
> determining a transmission timing for each of one or more received data packet packets, based on a quality of service set in the each of the data packet packets;
> multiplexing, at the determined transmission timing, each of the data packet packets into a radio layer 2 tunneling protocol data unit of a fixed length which is transmitted and received on the single radio layer 2 connection.

Claims 2 and 4 recite a corresponding controller device and mobile station respectively.

Miya describes a cellular wireless transmission method where a single base station

processes signals received in distributed antennas such that a demodulator can perform

maximum ratio combining with respect to every signal after radio reception processing.[1]

Cheng describes a method for controlling RLP (radio link protocol) logical layer

operations of a communication station.[2] Moreover, Cheng describes that RPL formatted

frames are communication upon multiple channels.[3]

However, the combination of Miya and Cheng does not describe or suggest

multiplexing, at the determined transmission timing, each of the data packet packets into a

radio layer 2 tunneling protocol data unit of a fixed length which is transmitted and received

on the single radio layer 2 connection.

The outstanding Action asserts on page 3 that the multiplexer in Figure 1 of Miya in

combination with the disclosure of Cheng performs the recited step of multiplexing, at the

determined transmission timing, each of the data packet packets into a radio layer 2 tunneling

protocol data unit of a fixed length. Further, the outstanding Action asserts that the radio

section 121 of Miya in combination with the disclosure of Cheng describes that the radio

layer 2 tunneling protocol data unit of a fixed length is transmitted and received on the single

radio layer 2 connection. Applicants respectfully traverse these assertions.

Specifically, neither the disclosure of Miya nor the disclosure of Cheng describes that

the radio layer 2 tunneling protocol data unit of a fixed length is transmitted and received on

the single radio layer 2 connection.

For instance, multiplexer 126 shown in Figure 1 of Miya does not describe

multiplexing each of the data packets into a radio layer 2 tunneling protocol data unit of a

fixed length based on the determined transmission timing. Instead as is described in

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[1] see Miya, Abstract.
[2] see Cheng, Abstract.
[3] see Cheng, paragraph 0027-28

paragraph 0007 of <u>Miya</u>, the multiplexer 126 of <u>Miya</u> is used to add TPC commands to RNC data. The multiplexer 126 of <u>Miya</u> never describes using a determined transmission timing to arrange data packets into a radio layer 2 tunneling protocol data unit.

In addition, paragraph 0143 of <u>Miya</u> describes that the sequence of packets transmitted by the radio section 121 can be managed such that they are transmitted by correct packet numbers. However, there is no description or suggestion that each of the data packets are multiplexed into a radio layer 2 tunneling protocol data unit of a fixed length based on the determined transmission timing.

Moreover, the outstanding Action acknowledges that <u>Miya</u> does not disclose a single radio layer 2 connection but relies on <u>Cheng</u> as disclosing this feature. However, Applicants note that <u>Cheng</u> does not describe or suggest that the radio layer 2 tunneling protocol data unit of a fixed length is transmitted and received on the single radio layer 2 connection.

The outstanding Action states on page 3 that Figure 2 of <u>Cheng</u> illustrates a single radio layer 2 connection. However, as can clearly be seen in Figure 2 of <u>Cheng</u>, a plurality of RLP connections are described in <u>Cheng</u>. Moreover, Figure 5 of <u>Cheng</u> also shows the multiple RLP connections (RLP instance ID 1 and RLP instance ID 2 on "Fundicated Channel", "Supplemental channel" and "F-PDCH Channel"). Thus, <u>Cheng</u> cannot reasonably be cited as curing the above noted deficiencies of <u>Miya</u> with regard to this feature of the claimed invention.

Thus, while <u>Miya</u> only describes performing the scheduling for packets in downlink transmission in accordance with the quality of communication services (QoS) and multiplexing the transmission data with the TPC command, in downlink transmission[4] and <u>Cheng</u> only describes that the data is transmitted by dividing into time slots (i.e. data is

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[4] <u>Miya</u>, paragraph 0123, 0038.

4

transmitted by TDM),[5] the claimed invention recites receiving a plurality of data packets in which respective qualities of service are set and multiplexing each of the plurality of data packets into a radio layer 2 protocol data unit transmitted and received on the single radio layer 2 connection. In other words, in the claimed invention, the data packets, to which different types of qualities are set, are multiplexed into one radio layer 2 connection. This feature is never described or rendered obvious by the combination of Miya and Cheng.

Moreover, the TDM disclosed in Cheng is a multiplexing scheme in which one channel loads data corresponding to a single type of quality. In other words, in TDM one time slot is not able to load data having different types of qualities. In contrast, in the claimed invention, one radio layer 2 connection loads data packets in which different types of qualities are set. Thus, the TDM of Cheng cannot be asserted as being equivalent to the features of the claimed invention.

Accordingly, Applicants respectfully submit that Claim 1 and similarly Claims 2 and 4, and claims depending respectively therefrom, patentably distinguish over Miya and Cheng.

Addressing now the rejection of Claims 6-8 under 35 U.S.C. §103(a) as unpatentable over Fujino in view of Cheng and Miya, that rejection is also respectfully traversed.

Claim 6 recites, in part,

> establishing, at a mobile station, a single radio layer 2 connection based on a radio layer 2 protocol;
> establishing a plurality of tunneling connections for respective qualities of service, between a first controller device and a second controller device;
> receiving, at the first controller device, a plurality of data packets in which the respective qualities of service are set and which are transmitted from the mobile station, through the single radio layer 2 connection or a single tunneling connection;
> determining, at the first controller device, a tunneling connection associated with a terminal address of the mobile station and a quality of service which are included in each of

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[5] See Cheng Figure 4.

5

the received plurality of data packets, among a plurality of tunneling connections for respective qualities of service; and
relaying, at the first controller device, each of the plurality of data packets to the second controller device through the determined tunneling connection.

Claim 8 recites a corresponding controller device.

Fujino describes a general packet radio service (GPRS) system for packet transmission between mobile stations in the system.[6] Fujino additionally describes placement of a new node in the network such that when a mobile station calls a nearby mobile station, the transmission is not routed across the entire network.

As is noted above, Cheng describes a method for controlling RLP (radio link protocol) logical layer operations of a communication station.[7] Moreover, Cheng describes that RPL formatted frames are communication upon multiple channels.[8] Further, Miya describes a cellular wireless transmission method where a single base station processes signals received in distributed antennas such that a demodulator can perform maximum ratio combining with respect to every signal after radio reception processing.[9]

However, the combination of Fujino, Cheng and Miya does not describe or suggest receiving, at the first controller device, a plurality of data packets in which the respective qualities of service are set and which are transmitted from the mobile station, through the single radio layer 2 connection or a single tunneling connection or determining, at the first controller device, a tunneling connection associated with a terminal address of the mobile station and a quality of service which are included in each of the received plurality of data packets, among a plurality of tunneling connections for respective qualities of service, as is recited in Claim 6.

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[6] see Fujino, Abstract.
[7] see Cheng, Abstract.
[8] see Cheng, paragraph 0027-28
[9] see Miya, Abstract.

With regard to the step of receiving, at the first controller device, a plurality of data packets in which the respective qualities of service are set and which are transmitted from the mobile station, through the single radio layer 2 connection or a single tunneling connection, the outstanding Action acknowledges that Fujino does not describe or suggest this feature but relies on Cheng and Miya as curing this deficiency. However, as is noted above, the combination of Cheng and Miya does not describe or suggest transmitting data packets through the single radio layer 2 connection or a single tunneling connection.

Moreover, with regard to the step of determining, at the first controller device, a tunneling connection associated with a terminal address of the mobile station and a quality of service which are included in each of the received plurality of data packets, among a plurality of tunneling connections for respective qualities of service, this feature also is not described or rendered obvious by Fujino as is suggested on page 6 of the outstanding Action.

In other words, while Fujino only describes that the GTP connection for relaying GTP packets is established between RNC and SGSN,[10] the claimed invention recited in Claim 6 recites receiving a plurality of data packets which are transmitted through the single radio layer 2 connection or a single tunneling connection, determining a tunneling connection associated with a quality of service which are included in each of the received plurality of data packets for respective qualities of service and relaying each of the plurality of data packets through the determined tunneling connection.

Thus, in the claimed invention, the data packets, which are multiplexed into one radio layer 2 connection, are relayed by being divided into each of determined tunneling connections. This feature is not described or suggested by the combination of Fujino, Cheng and Miya.

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[10] See Fujino, paragraph 0033-0035.

Moreover, Applicants note that the "single radio layer 2 connection or a single tunneling connection" included in the recited language of receiving a plurality of data packets through the single radio layer 2 connection or a single tunneling connection and "a tunneling connection/ a plurality of tunneling connections" included in the language of determining a tunneling connection among a plurality of tunneling connection are different connections and should be interpreted as such.

Accordingly, Applicants respectfully submit that Claim 6 and similarly Claim 8, and claims depending respectively therefrom, patentably distinguish over Fujino, Cheng and Miya considered individually or in combination.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.
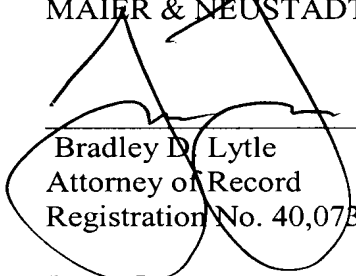
Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Bradley D. Lytle
Attorney of Record
Registration No. 40,073

James Love
Registration No. 58,421

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)

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